

10/677,713
Martelli
GAU: 1772 (A. Chevalier)

Specification Amendments

Please replace the paragraph from Page 4, Line 28 through Page 5, Line 4 (Paragraph [0023] of Published Patent Application 20040071936) as follows:

The amount of colorant to be added to the thermoplastic resin can range from about 0.01 to about 15 parts by weight, and preferably from about 0.2 to 5 parts by weight. Additional information about the colorant and the thermoplastic resins is found in United States Patent Application Serial Nos. 08/876,003 (Phillips) and 09/480,955 (Phillips), the disclosures of which are incorporated by reference herein, the latter of which issued as U.S. Pat. No. 6,524,694 (Phillips), and in PCT Patent Publication WO 98/56850 (Hanna).

Please add the following new paragraphs after Page 5, Line 4 (Paragraph [0023] of Published Patent Application 20040071936) as follows:

The translucent optical effects imparted by the compositions and methods of the invention are achieved by mixing very small quantities of light-diffusing particles, having an average maximum particle size of about 0.1 to about 200 microns, preferably about 1 to about 100 microns, with a transparent thermoplastic polymer prior to molding or extruding the mixture. Preferably, the particles are selected on the basis of their ability to reflect and transmit light diffusely, rather than rectilinearly or specularly, and the translucent visual effect more closely resembles a matte finished molded or spray-coated product. Thus, for example, light-diffusing materials, such as non-shiny mica particles used for laser marking, are preferred over light reflecting (specular) materials, such as mica pearls. However, mica pearls may also be employed to achieve a frosted effect with a more "satin" appearance.

To achieve the desired frosted effect, the light-diffusing particles may be in any form, such as powders, fibers, whiskers, platelets, flakes, aggregates, agglomerates or mixtures of these. Suitable particles include, but are not limited to, naturally occurring calcium carbonates, including reagent-grade calcium carbonate, ground chalk, ground limestone, ground marble and ground dolomite; ground or fiber calcium sulfates; silicates, such as glass fibers, glass flakes, solid and hollow glass

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spheres, aluminum silicate, synthetic calcium silicate and zirconium silicate; talc; kaolin; mica flakes, platelets and pearls; natural silicas, such as sand, quartz, quartzite, perlite, tripoli and diatomaceous earth; fumed silicas; titanates, such as barium titanate; sulfates, such as barium sulfate; sulfides, such as zinc sulfide and molybdenum sulfide; metallic oxides, such as aluminum oxide, zinc oxide, beryllium oxide, magnesium oxide, zirconium oxide, antimony oxide, titanium dioxide and aluminum hydroxide; aluminum diboride flakes; inorganic fibers, such as wollastonite, basalt, boron, boron nitrides and ceramic; single crystal fibers (i.e. whiskers), such as those of alumina trihydrate; short fibers, such as those of aluminum silicate with aluminum and magnesium oxides and calcium sulfate hemihydrate; organic flatting agents, such as wood flour and starch; and mixtures of any of the foregoing. If the particulate material is boron nitride, it is preferably in the form of, for example, powders, aggregates, agglomerates, and the like, or mixtures of these.

A desired translucent optical effect ranging in a continuum from very smooth visual textured effects to very grainy visual textured effects may be achieved, depending on the particulate material or mixture of particulate materials selected and the quantity of the particulate employed. For example, a smooth visual translucency is obtained by using white powder particulates, such as barium sulfate, zinc sulfide or ultrafine ground chalk. Slightly grainy visual translucency is obtained by using transparent particulates, such as solid glass microspheres having a particle diameter of about 2 to about 100 microns (preferably about 4 to about 44 microns) or hollow glass microspheres having a particle diameter of about 10 to 100 microns (preferably about 65 to about 75 microns); whereas a slightly more grainy visual translucency is obtained by using ceramic fibers having a diameter of about 2 to about 12 microns, and lengths of about 45 microns to about 1.5 millimeters (mm). Grainy translucent visual effects are also obtained with additives such as lamellar kaolin having an aspect ratio of 10:1 (length:diameter). To obtain very grainy visual translucent effects, wollastonite having aspect ratios ranging from about 5:1 to 15:1, are employed, with the highest aspect ratios giving the grainiest effects. Very grainy translucent visual

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effects are also achieved by using whiskers, such as such as those of alumina trihydrate, and metal flakes or platelets, such as those of mica.

Exemplary suitable particles for use in the invention are Sachtleben Blanc Fixe Micro[®] 2278N (milled barium sulfate, approximately 3 microns, available from Whittaker, Clark & Daniels, Inc., South Plainfield, N.J. (manufacturer Sachtleben, Germany); Omyacarb[®] 4 (calcium carbonate, 3.5 micron median, 15 micron max, Omya Inc.); Talc 399 (talc (magnesium silicate), available from Whittaker, Clark & Daniels, Inc., South Plainfield, N.J. (manufacturer Specialty Mineral); Zeespheres[®] W-610 (ceramic microspheres, mixture of particle sizes of approximately 2 to 45 microns, Zeelan Industries, St. Paul, Minn.); Silcron[®] G602 (fine particle silica, average particle size approximately 2.7 microns, SCM Pigments, Baltimore, Md.); NYAD G[®] Wollastocoate (wollastonite, aspect ratio 15:1, 100-325 mesh), NYAD[®] 400 wollastonite (aspect ratio 5:1), 400 Wollastocoate (aspect ratio 5:1, 400 mesh) (NYCO Minerals, Inc., Willsboro, N.Y.); hollow glass microspheres (glass bubbles, 3M Corporation); Acematt[®] TS 100 (silica flatting agent, average particle size approximately 2 to 10 microns, Degussa Corp., Ridgefield Park, N.J.); Iridin[®]/Lazer Flair[®] LS 810 (mica-based additive, particle size approximately 2 to 28 microns, EM Industries, Hawthorne, N.Y.); Afflair[®] 110 Fine Satin (mica-based additive, E.M. Industries, Hawthorne, N.Y.); Polartherm[®] (PT110 (Advanced Ceramics Corporation, Cleveland, Ohio; boron nitride particulate material, exhibiting a particle size distribution as follows: 10% of particles 23.770 microns or smaller, 50% of particles 49.920 microns or smaller, and 90% of particles 73.710 microns or smaller); and Carborundum Carbotherm[®] AS0517 (Carborundum Corporation, Amherst, N.Y.; boron nitride particulate material, agglomerates: approximate particle size 30 microns).

Because the quantities of the particulates employed in the invention compositions and methods are extremely small, the particulates do not perform the traditional functions of fillers (e.g. reinforcers, extenders, opacifiers, plasticizers, etc.).